

CLAIMS

We claim:

1 1. A monoclonal antibody which binds to a polyethylene glycol molecule or a
2 polyethylene glycol moiety of a polyethylene glycol-containing compound.

1 2. The monoclonal antibody of claim 1, wherein said monoclonal antibody is
2 derivatized.

1 3. The monoclonal antibody of claim 2, wherein said monoclonal antibody is
2 biotinylated.

1 4. The monoclonal antibody of claim 2, wherein said monoclonal antibody is
2 labeled with a radioisotope.

1 5. The monoclonal antibody of claim 4, wherein said radioisotope is selected
2 from the group consisting of ^{125}I and ^{131}I .

1 6. The monoclonal antibody of claim 2, wherein said monoclonal antibody is
2 conjugated to an enzyme which converts a substrate into a detectable product.

1 7. The monoclonal antibody of claim 6, wherein said enzyme is horse-radish
2 peroxidase.

1 8. A hybridoma cell line producing a monoclonal antibody which binds to a
2 polyethylene glycol molecule or a polyethylene glycol moiety of a polyethylene-glycol-
3 containing compound.

1 9. A method of producing a monoclonal antibody which binds to a polyethylene
2 glycol molecule or a polyethylene glycol moiety of a polyethylene-glycol-containing
3 compound, comprising the steps of:

- 4 a) producing a immunogenic compound comprising a polyethylene
5 glycol moiety and an immunogenic moiety;
6 b) immunizing a mouse with said immunogenic compound; and
7 c) producing a hybridoma by fusing a spleen cell from said
8 immunized mouse with a myeloma cell.

1 10. The method of claim 9, wherein said immunogenic moiety of said
2 immunogenic compound is beta-glucuronidase.

1 11. The method of claim 9, wherein said immunogenic compound further
2 comprises a murine monoclonal antibody moiety linked to beta-glucuronidase.

1 12. The method of claim 11, wherein said murine antibody moiety is
2 monoclonal antibody RH1, which is an IgG_{2a} type and binds to an antigen expressed on the
3 surface of AS-30D rat hepatoma cells.

1 13. A method for identifying or measuring the concentration of a polyethylene
2 glycol or a polyethylene-glycol-containing compound, comprising the steps of:

3 a) obtaining a sample to be identified; and

4 b) measuring the amount of polyethylene glycol or polyethylene glycol-
5 containing compound by contacting a monoclonal antibody which binds to polyethylene glycol
6 with the said sample and measuring the amount of polyethylene glycol or polyethylene-glycol-
7 containing compound bound to the monoclonal antibody.

1 14. The method of claim 13, wherein said step b is performed by
2 immunoblotting.

3 15. The method of claim 13, wherein said step b is performed by enzyme-linked
4 immunosorbent assay (ELISA).

1 16. The method of claim 13, wherein said step b is performed by
2 radioimmunoassay.

1 17. The method of claim 13, wherein said sample is a sample of the human
2 body fluid.

1 18. A method for identifying or measuring the concentration of a polyethylene
2 glycol or a polyethylene-glycol-containing compound, comprising the steps of:

3 a) coating a solid support with a first portion of a monoclonal antibody that
4 binds polyethylene glycol;

5 b) contacting said monoclonal antibody on the solid support with
6 polyethylene glycol or a polyethylene-glycol-containing compound;

7 c) contacting the captured polyethylene glycol or polyethylene-glycol-
8 containing compound with a second portion of said monoclonal antibody that has been
9 previously radiolabeled, linked to an enzyme or derivatized with biotin; and

10 d) measuring the amount of said bound antibody.

1 19. A composition comprising the monoclonal antibody of claims 1 and a
2 pharmaceutically acceptable carrier.

1 20. The monoclonal antibody of claim 1, wherein said monoclonal antibody is
2 an IgM.

1 21. A method of accelerating the clearance of a polyethylene glycol-containing
2 compound in the blood circulation of a patient who was previously administered with said

3 polyethylene glycol-containing compound, comprising the step of administering to said patient
4 a pharmaceutical composition comprising an anti-polyethylene glycol antibody.

1 22. The method of claim 21, wherein said anti-polyethylene glycol antibody is
2 administered to said patient less than 10 days after administering said polyethylene glycol-
3 containing compound to said patient.

1 23. The method of claim 21, wherein said anti-polyethylene glycol antibody is
2 administered to said patient less than 5 days after administering said polyethylene glycol-
3 containing compound to said patient.

1 24. The method of claim 21, wherein said anti-polyethylene glycol antibody is
2 administered to said patient from 24 hours to 5 days after administering said polyethylene
3 glycol-containing compound to said patient.

1 25. The method of claim 21, wherein said polyethylene glycol-containing
2 compound comprises β -glucuronidase.

1 26. The method of claim 21, wherein said anti-polyethylene glycol antibody is
2 an anti-polyethylene glycol monoclonal antibody.

1 27. The method of claim 26, wherein said monoclonal antibody is an IgM.

1 28. The method of claim 21, wherein said anti-polyethylene glycol antibody is
2 derivatized with galactose so as to be targeted by an asialoglycoprotein receptor on a
3 hepatocyte and internalized by said hepatocyte.

1 29. A method of treating a patient suffering from a tumor, comprising the steps
2 of:

3 a) administering a polyethylene glycol-containing conjugate comprising
4 tumor targeting means and means for activating an anti-tumor prodrug to said patient;

5 b) administering an anti-polyethylene glycol antibody to said patient to
6 accelerate the clearance of said polyethylene glycol-containing compound from the
7 blood circulation of said patient after step a; and

8 c) administering said anti-tumor prodrug to said patient after step b.

1 30. The method of claim 29, wherein said anti-polyethylene glycol antibody is
2 administered to said patient less than 10 days after administering said polyethylene glycol-
3 containing conjugate to said patient.

1 31. The method of claim 29, wherein said anti-polyethylene glycol antibody is
2 administered to said patient less than 5 days after administering said polyethylene glycol-
3 containing conjugate to said patient.

1 32. The method of claim 29, wherein said anti-polyethylene glycol antibody is
2 administered to said patient from 24 hours to 5 days after administering said polyethylene
3 glycol-containing conjugate to said patient.

1 33. The method of claim 29, wherein said means for activating an anti-tumor
2 drug is β -glucuronidase.

1 34. The method of claim 29, wherein said anti-polyethylene glycol antibody is
2 an anti-polyethylene glycol monoclonal antibody.

1 35. The method of claim 34, wherein said monoclonal is a IgM.

1 36. The method of claim 29, wherein said anti-polyethylene glycol antibody is
2 derivatized with galactose so as to be targeted by an asialoglycoprotein receptor on a
3 hepatocyte and internalized by said hepatocyte.

1 37. The method of claim 29, wherein said anti-tumor prodrug is tetra n-butyl
2 ammonium salt of a glucuronide derivative of p-hydroxyaniline mustard.

1 38. A monoclonal antibody which binds to an epitope comprising a $-\text{[OCH}_2\text{CH}_2\text{]}-$
2 moieties.

1 39. A hybridoma producing a monoclonal antibody which binds to an epitope
2 comprising $-\text{[OCH}_2\text{CH}_2\text{]}-$ moieties.

1 40. A monoclonal antibody AGP3 which is produced by hybridoma having
2 deposit number CCTCC-V-200001.

1 41. A hybridoma having deposit number CCTCC-V-200001.